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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/581,416

06/02/2006

Philip Rogers

11034-0026US

3728

22902

7590

10/08/2008

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WASHINGTON, DC 20005

EXAMINER

NGUYEN, PHILLIP

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

10/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,416	Applicant(s) ROGERS ET AL.	
	Examiner PHILLIP NGUYEN	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/8/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/2/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/8/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rice et al. (US 6200309) in view of Richardson et al. (US 20030156605).

With respect to claims 1-2, Rice discloses the claimed invention as follows:

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FIG. 1

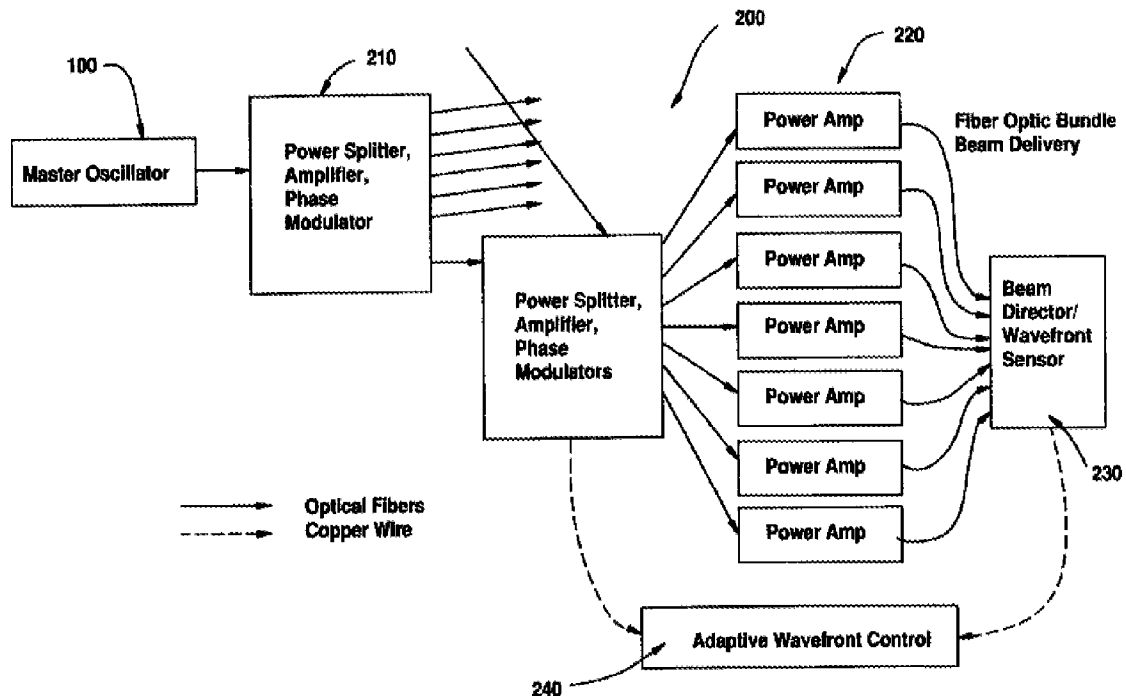
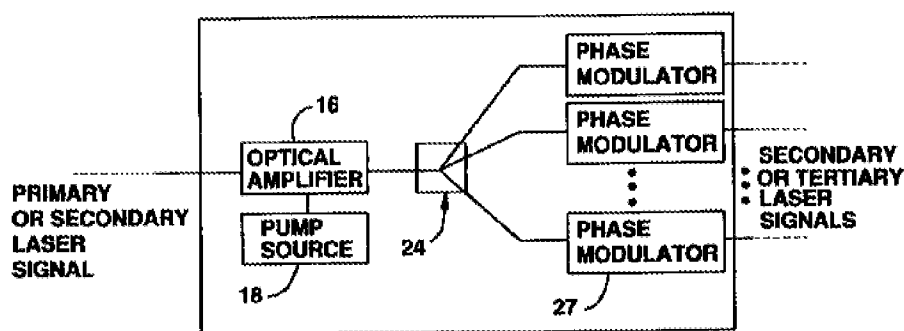


FIG. 2A



Figs. 1 and 2 illustrates a high power, integrated fiber laser amplifier comprising a seed laser 100 producing a seed pulse and one or more power amplifier stages comprising: a fiber preamplifier 210 receiving and amplifying the seed pulse, said fiber preamplifier having a first core diameter; a splitter 24 arranged to receive light from said preamplifier and split said light

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into a plurality of channels, a plurality of fiber power amplifier amplifiers 220, and means for coupling each of said fiber preamplifier channels to a respective one of said fiber power amplifier amplifiers (see the Fig. 1).

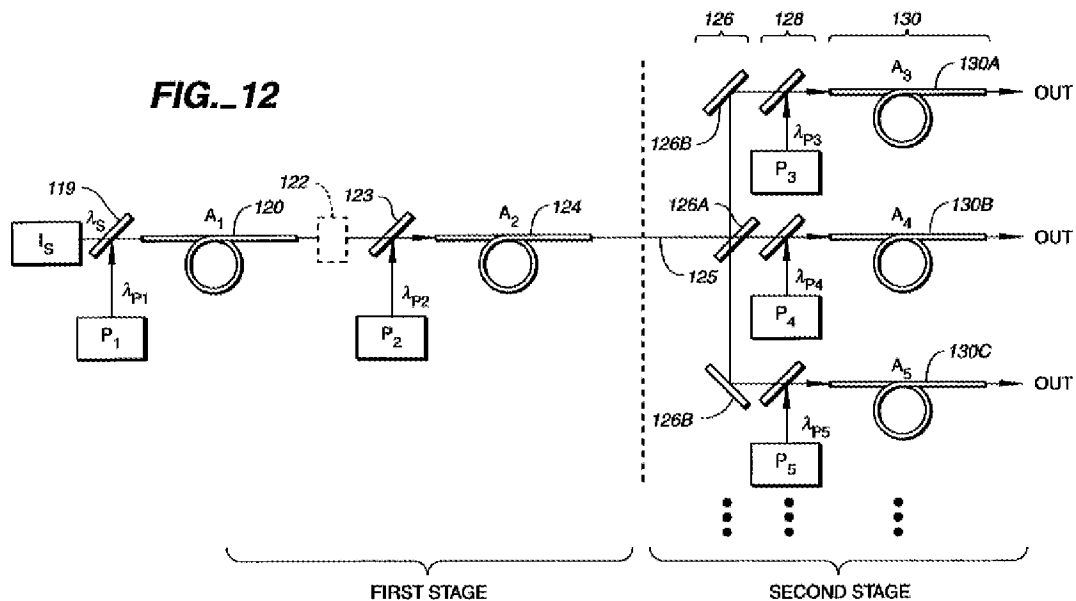
However, Rice does not explicitly teach each of the plurality of fiber power amplifier comprises comprising a low numerical aperture, coiled clad fiber, having a core diameter larger than said first core diameter.

Richardson discloses a similar high power stage amplifier as shown in Fig. 1 and discussed in the previous Office Action. However, since the amended claims further includes a beam splitter and more than one power amplifier. Richardson is not qualified as a stand-alone prior art. However, Richardson is still a solid reference regarding the claimed invention. In this case, Richardson teaches the missing part of the Rice with respect to the claim which is the clear advantage of having a low numerical aperture, coiled clad, and larger core diameter than that of the preamplifier in order to reduce the distortion (see paragraph 0157). Richardson further discloses the numerical aperture being between 0.06-0.08.

It would have been obvious to one skill in the art at the time the invention was made to provide the fiber power amplifiers with low numerical aperture and larger core diameter than that of the pre-amplifier because the high end power amplifier should have higher power than the pre-amplifier

With respect to claim 4, Richardson further discloses the claimed invention as shown in the previous Office Action.

Claims 1-2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waarts et al. (US 5933271) view of Richardson et al. (US 20030156605).



With respect to claims 1-2, fig. 12 illustrates a high power, integrated fiber laser amplifier comprising a seed laser I_s producing a seed pulse and one or more power amplifier stages comprising: a fiber preamplifier A_1/A_2 receiving and amplifying the seed pulse, said fiber preamplifier having a first core diameter; a splitter 126A arranged to receive light from said preamplifier and split said light into a plurality of channels, a plurality of fiber power amplifier amplifiers 130A-C, and means 126A-C and/or 128 for coupling each of said fiber preamplifier channels to a respective one of said fiber power amplifier amplifiers.

Like Rice, Waarts is silent of the numerical aperture and the diameter of the power amplifiers 130.

As discussed above, Richardson explicitly teaches what Waarts does not spell explicitly.

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For this reason, it would have been obvious to combine the teachings of Waarts and Richardson to make the claimed invention.

With respect to claim 4, Waarts discloses first means P1 for pumping said fiber preamplifier, second means P3-4 for pumping said fiber power amplifier, and means for synchronizing the seed pulse with said first and second means for pumping to reduce ASE (col. 3, lines 45 lines 22 of col. 4).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Waarts et al. (US 5933271) view of Richardson et al. (US 20030156605) and further in view of DiGiovanni et al. (US 5864644). Waarts and Richardson disclose the claimed invention except for a tapered fiber bundle. DiGiovanni discloses in Figures 7A-H tapered fiber buddies to connect to the cladding of the fiber amplifier for directing pump energy into the cladding. It would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide the tapered fiber bundle as taught by DiGiovanni to Richardson and Waarts in order to couple fiber to the fiber amplifier more efficient.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/Phillip Nguyen/

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/Minsun Harvey/

Supervisory Patent Examiner, Art Unit 2828